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EXAMINER	
ANYA, CHARLES E	

ART UNIT	PAPER NUMBER
2194	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/072,364	SADOT, EMEK	
	Examiner	Art Unit	
	Charles E. Anya	2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-51 are pending in this application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,3,5,24,37,41 and 47 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pub. No. 2003/0055971 A1 to Menon.

As to claim 1, Menon teaches a method of selecting a server to represent a virtual server hosted by a plurality of servers (figure 2), comprising: providing, by a load balancer not associated with the virtual server (Program 128), values for one or more parameters ("...factors...bandwidth..." page 1 paragraph 0100), of two or more paths, each path defined between a point in a vicinity of a client accessing the virtual server and one of the plurality of servers representing the virtual server (figures 2/3, Communication Links 114(1)-114(M)/120(1)-120(N) page 2 paragraph 0023); and selecting a server to provide data for the client, responsive to the values of the one or

more parameters (Request 204 page 2 paragraph 0027, "...determines..." page 2 paragraph 0027, "...bandwidth..." page 2 paragraph 0028) and wherein the load balancer comprises a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server based on said one or more parameters (Program 128 page 1 paragraphs 0009-0011, page 2 paragraph 0028).

3. As to claim 3, Menon teaches a method according to claim 1, wherein the client-controlled load balancer resides between the client and the virtual server (figures 2/3).

4. As to claim 5, Menon teaches a method according to claim 1, wherein the one or more parameters comprise a cost ("...factors...bandwidth..." page 1 paragraph 0100).

5. As to claim 24, see the rejection of claim 24 above.

6. As to claim 37, Menon teaches a method of selecting a server to be accessed (figure 2), comprising: receiving, by a load balancer, a message relating to a virtual server, hosted by a plurality of servers, and to a client desiring to receive data from the virtual server (Request 204 page 2 paragraph 0027); and selecting, by the load balancer, one of the plurality of servers to provide data to the client, at least partially responsive to the cost of communications between the client and one or more of the plurality of servers, wherein the load balancer as comprising a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual

server ("...the program 128 may consider..." page 1 paragraph 0100, "The program 128 can load balance...considering the actual bandwidth..." page 2 paragraph 0028).

7. As to claim 41, Menon teaches a load balancer, comprising: an interface adapted to receive server access messages from clients (Request 204 page 2 paragraph 0027, "...via the program 128..." page 2 paragraph 0027); and a processor adapted to determine, for at least one of the messages, whether the message requires load balancing responsive to at least one attribute different from the identity of the server referenced by the message ("...the program 128 may consider..." page 1 paragraph 0100, "The program 128 can load balance...considering the actual bandwidth..." page 2 paragraph 0028), and to select for at least one message determined to require load balancing, a server to service the client and wherein the processor comprising a client-controlled processor that directly selects the server to service the client based on the at least one attribute ("...the program 128 may consider..." page 1 paragraph 0100, "The program 128 can load balance...considering the actual bandwidth..." page 2 paragraph 0028).

8. As to claim 47, Menon teaches a method of selecting a server to be accessed, comprising: receiving, by a load balancer, a message relating to a virtual server, hosted by a plurality of servers, and to a client desiring to receive data from the virtual server Request 204 page 2 paragraph 0027); and choosing a function from a plurality of predetermined functions utilized by the load balancer for selecting servers, responsive

to the received message ("...factors...bandwidth..." page 1 paragraph 0100); and selecting, by the load balancer, one of the plurality of servers that minimizes or maximizes the chosen function, to provide data to the client and the load balancer comprising a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server that minimizes or maximizes the chosen function ("...the program 128 may consider..." page 1 paragraph 0100, "The program 128 can load balance...considering the actual bandwidth..." page 2 paragraph 0028).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-4,6,7,13-17,24-33,35-37,41,42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,047,301 B2 to Skene et al. in view of U.S. Pat. No. 6,182,139 B1 to Brendel.

10. As to claim 1, Skene teaches a method of selecting a server to represent a virtual server hosted by a plurality of servers, comprising: providing, by a load balancer not associated with the virtual server, values for one or more parameters, of two or more paths, each path defined between a point in a vicinity of a client accessing the virtual

server and one of the plurality of servers representing the virtual server (EDNS Server 160 "...round trip time...hops..." Col. 5 Ln. 18 – 28); and selecting a server to provide data for the client, responsive to the values of the one or more parameters ("...EDNS server determines which virtual servers..." Col. 2 Ln. 30 – 38, Block 710 Col. 11 Ln. 50 – 67, Col. 12 Ln. 1 – 13, Block 930 Col. 13 Ln. 45 – 50).

Skene is silent with reference to the load balancer comprises a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server.

Brendel teaches the load balancer comprises a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server ("...load-balancer module in the client machine...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

It would have been obvious to one of ordinary skill in the art the time the invention was made to modify the system of Skene with the teaching of Brendel because the teaching of Brendel would improve the system of Skene by allowing for client-side load balancing that is transparent to high-level user applications (Brendel Col. 5 Ln. 18 – 19).

11. As to claim 2, Brendel teaches a method according to claim 1, wherein the load balancer and the client are in the same metropolitan area (Col. 5 Ln. 1 – 19).

12. As to claim 3, Brendel teaches a method according to claim 1, wherein the client-controlled load balancer resides between the client and the virtual server (figures 3/5).

13. As to claim 4, Skene teaches a method according to claim 1, wherein the one or more parameters comprise at least one of a jitter, a round trip delay or a hop count "...round trip time...hops..." Col. 5 Ln. 18 – 28).

14. As to claim 5, Skene teaches a method according to claim 1, wherein the one or more parameters comprise a cost ("...loading balancing metrics..." Col. 5 Ln. 18 – 43).

15. As to claim 6, Brendel teaches a method according to claim 1, wherein selecting the server comprises selecting, by a client-controlled load balancer, responsive to receiving identification of a virtual server requested by the client ("...URL..." Col. 5 Ln. 1 – 35).

16. As to claim 7, Brendel teaches a method according to claim 6, wherein selecting the server comprises selecting, by a client-controlled load balancer, responsive to receiving a connection establishment request from the client ("...connection..." Col. 5 Ln. 1 – 35).

17. As to claim 13, Skene teaches a method according to claim 1, further comprising transmitting an IP address of the selected server to the client ("... IP address... to the client..." Col. 12 Ln. 1 – 6).

18. As to claim 14, Skene teaches a method according to claim 13, wherein transmitting the IP address of the selected server to the client comprises transmitting a DNS response ("... IP address... to the client..." Col. 12 Ln. 1 – 6).

19. As to claim 15, Skene teaches a method according to claim 1, wherein ones of the plurality of servers are located in different geographical regions (figure 1 Col. 4 Ln. 25 – 32, Col. 8 Ln. 57 – 67).

20. As to claim 16, Skene teaches a method according to claim 1, wherein selecting a server to provide data for the client comprises selecting, by the load balancer, a second load balancer which is to perform the server selection and selecting, by the second load balancer, a server to provide data for the client (Virtual ENDS Server 160/SACs 1/101 Col. 12 Ln. 1 – 14).

21. As to claim 17, Skene teaches a method according to claim 1, wherein the virtual server hosts a web site ("...web site..." Col. 4 Ln. 14 – 18).

22. As to claim 24, Skene teaches a method of selecting a server to be accessed, comprising: receiving, by a load balancer, a message relating to a virtual server, hosted by a plurality of servers ("LDNS server requests..." Col. 2 Ln. 30 – 39, figure 7 Col. 11 Ln. 50 – 67, Col. 12 Ln. 1 – 14), and to a client desiring to receive data from the virtual server ("...client's request..." Col. 11 Ln. 57 – 67); and selecting, by the load balancer, one of the plurality of servers to provide data to the server ("...EDNS server determines..." Col. 2 Ln. 30 – 39, Block 710 Col. 11 Ln. 57 – 67, Col. 13 Ln. 45 – 50, Col. 14 Ln. 39 – 42).

Skene is silent with reference to the load balancer being closer to the client than to the selected server, and wherein the load balancer comprises a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server.

Brendel teaches the load balancer being closer to the client than to the selected server, and wherein the load balancer comprises a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server ("...load-balancer module in the client machine...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

It would have been obvious to one of ordinary skill in the art the time the invention was made to modify the system of Skene with the teaching of Brendel because the teaching of Brendel would improve the system of Skene by allowing for client-side load balancing that is transparent to high-level user applications (Brendel Col. 5 Ln. 18 – 19).

23. As to claim 25, Brendel teaches a method according to claim 24, wherein the load balancer is closer to the client than to any of the plurality of servers hosting the virtual server ("...load-balancer module in the client machine...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

24. As to claims 26 and 27, see the rejection of claims 2 and 3 respectively.

25. As to claim 28, Brendel teaches a method according to claim 24, wherein the load balancer is not associated with the virtual server (Client Dispatcher 20).

26. As to claim 29, Brendel teaches a method according to claim 24, wherein the load balancer is under control of a system manager of the client ("...load-balancer module in the client machine...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

27. As to claim 30, Skene teaches a method according to claim 24, wherein receiving the message comprises receiving a DNS query message ("LDNS server requests..." Col. 2 Ln. 30 – 38).

28. As to claim 31, Skene teaches a method according to claim 24, wherein receiving the message comprises receiving from a DNS server ("LDNS server requests..." Col. 2 Ln. 30 – 38).

29. As to claim 32, Brendel teaches a method according to claim 24, wherein receiving the message comprises receiving a connection establishment request directed to the virtual server ("...connection..." Col. 5 Ln. 1 – 35).

30. As to claim 33, Skene teaches a method according to claim 24, wherein receiving the message comprises receiving a message directed to the load balancer ("LDNS server requests..." Col. 2 Ln. 30 – 38).

31. As to claim 35, Skene teaches a method according to claim 24, wherein selecting one of the servers comprises selecting a server which has a lowest delay path or a highest packet size path to the load balancer ("...packet rate..." Col. 5 Ln. 18 – 43).

32. As to claim 36, Brendel teaches a method according to claim 24, wherein the load balancer is geographically closer to the client than to the selected server ("...load-balancer module in the client machine...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

33. As to claim 37, Skene teaches a method of selecting a server to be accessed, comprising: receiving, by a load balancer, a message relating to a virtual server, hosted by a plurality of servers ("LDNS server requests..." Col. 2 Ln. 30 – 39, figure 7 Col. 11 Ln. 50 – 67, Col. 12 Ln. 1 – 14), and to a client desiring to receive data from the virtual server ("...client's request..." Col. 11 Ln. 57 – 67); and selecting, by the load balancer, one of the plurality of servers to provide data to the client, at least partially responsive to the cost of communications between the client and one or more of the plurality of servers ("...loading balancing metrics..." Col. 5 Ln. 18 – 28).

Skene is silent with reference to the load balancer as comprising a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server.

Brendel teaches the load balancer as comprising a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server ("...load-balancer module in the client machine...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

It would have been obvious to one of ordinary skill in the art the time the invention was made to modify the system of Skene with the teaching of Brendel because the teaching of Brendel would improve the system of Skene by allowing for client-side load balancing that is transparent to high-level user applications (Brendel Col. 5 Ln. 18 – 19).

34. As to claim 41, Skene teaches a load balancer, comprising: an interface adapted to receive server access messages from clients ("LDNS server requests..." Col. 2 Ln. 30 – 39, figure 7 Col. 11 Ln. 50 – 67, Col. 12 Ln. 1 – 14); and a processor adapted to determine, for at least one of the messages, whether the message requires load balancing responsive to at least one attribute different from the identity of the server referenced by the message ("EDNS server determines..." Col. 2 Ln. 30 – 38, EDNS Server 160 Col. 5 Ln. 18 – 43), and to select for at least one message determined to require load balancing, a server to service the client ("EDNS server determines..." Col. 2 Ln. 30 – 38; Block 710 Col. 11 Ln. 57 – 67, Col. 12 Ln. 1 – 14).

Skene is silent with reference to the processor comprising a client-controlled processor that directly selects the server to service the client based on the at least one attribute.

Brendel teaches the processor comprising a client-controlled processor that directly selects the server to service the client based on the at least one attribute ("...load-balancer module in the client machine...URL...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

It would have been obvious to one of ordinary skill in the art the time the invention was made to modify the system of Skene with the teaching of Brendel because the teaching of Brendel would improve the system of Skene by allowing for client-side load balancing that is transparent to high-level user applications (Brendel Col. 5 Ln. 18 – 19).

35. As to claim 42, Skene teaches a load balancer according to claim 41, wherein the at least one attribute comprises the time at which the message is received at the interface ("...round trip time..." Col. 5 Ln. 18 – 28).

36. As to claim 44, Skene teaches a load balancer according to claim 41, wherein the at least one attribute comprises a protocol to govern the communication with the server ("...load balancing metrics..." Col. 5 Ln. 18 – 35).

37. Claims 8-10,18-23,34,38-40,43 and 47-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pub. No. 2001/0047415 A1 to Skene et al. in view of U.S. Pat. No. 6,182,139 B1 to Brendel as applied to claim 6 above, and further in view of U.S. Pat. No. 6,249,801 B1 to Zisapel et al.

38. As to claim 8, Brendel and Skene are silent with reference to a method according to claim 6, wherein providing the values for the one or more parameters comprise measuring at least one of the parameters.

Zisapel teaches a method according to claim 6, wherein providing the values for the one or more parameters comprises measuring at least one of the parameters (Col. 6 Ln. 50 - 55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Brendel and Skene with the teaching of Zisapel because the teaching of Zisapel would improve the system of Brendel and

Skene by providing access to the closest or best suited server to service a client request (Zisapel Col. 6 Ln. 50 - 55).

39. As to claim 9, Zisapel teaches a method according to claim 8, wherein measuring at least one of the parameters, for at least one of the paths, is performed before receiving the connection establishment request (Proximity Table 54 Col. 6 Ln. 35 - 39).

40. As to claim 10, Zisapel teaches a method according to claim 8, wherein measuring at least one of the parameters for at least one of the paths is performed after receiving the connection establishment request (Col. 6 Ln. 50 - 55).

41. As to claim 18, Zisapel teaches a method according to claim 1, wherein selecting a server to provide data for the client comprises selecting a server which minimizes a function of the one or more parameters ("...weighting..." Col. 7 Ln. 17 - 34).

42. As to claim 19, Zisapel teaches a method according to claim 18, wherein selecting a server to provide data comprises choosing a function of the one or more parameters to be minimized and selecting a server which minimizes the chosen function (Col. 7 Ln. 17 - 42).

43. As to claim 20, Skene teaches method according to claim 19, wherein the function is chosen responsive to a protocol with which the virtual server is accessed ("...load balancing metrics..." Col. 5 Ln. 18 – 43).

44. As to claim 21, Skene teaches method according to claim 19, wherein the function is chosen responsive to the virtual server accessed ("...load balancing metrics..." Col. 5 Ln. 18 – 43).

45. As to claim 22, Zisapel teaches a method according to claim 19, wherein the function is chosen responsive to all attribute of the client (Col. 7 Ln. 17 - 34).

46. As to claim 23, Skene teaches a method according to claim 19, wherein the function is chosen responsive to the time of the selection ("...load balancing metrics..." Col. 5 Ln. 18 – 43).

47. As to claim 34, Zisapel teaches a method according to claim 24, wherein selecting one of the servers comprises selecting a server which has a lowest cost path to the load balancer ("...lowest total weighted..." Col. 7 Ln. 1 7 - 34).

48. As to claim 38, Zisapel teaches a method according to claim 37, wherein selecting one of the servers comprises selecting a server under a constraint that a

lowest cost client communication connection is used in connecting to the server ("...lowest total weighted..." Col. 7 Ln. 1 7 - 34).

49. As to claim 39, Zisapel teaches a method according to claim 37, wherein selecting one of the sewers comprises selecting a server which minimizes a weighted sum of communication costs to the server and at least one other route related parameter ("...hop...TTL..." "...weighting..." Col. 7 Ln. 6 – 34).

50. As to claim 40, Zisapel teaches a method according to claim 39, wherein selecting one of the sewers comprises selecting a server which minimizes a weighted sum of the communication costs to the server and the round trip delay to the server ("...latency..." "...weighting..." Col. 7 Ln. 6 - 34).

51. As to claim 43, Zisapel teaches a load balancer according to claim 41, wherein the at least one attribute comprises the identity of the client.(Request 28 Col. 5 Ln. 32 – 38).

52. As to claim 47, Skene teaches a method of selecting a server to be accessed, comprising: receiving, by a load balancer, a message relating to a virtual server, hosted by a plurality of servers, and to a client desiring to receive data from the virtual server ("LDNS server requests..." Col. 2 Ln. 30 – 39, figure 7 Col. 11 Ln. 50 – 67, Col. 12 Ln. 1 – 14); and choosing a function from a plurality of predetermined functions utilized by the

load balancer for selecting servers, responsive to the received message ("...load balancing metrics..." Col. 5 Ln. 18 – 43, Block 930 Col. 13 Ln. 45 – 50).

Skene is silent with reference to selecting, by the load balancer, one of the plurality of servers that minimizes or maximizes the chosen function, to provide data to the client and a load balancer comprising a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server that minimizes or maximizes the chosen function.

Brendel teaches a load balancer comprising a client-controlled load balancer that directly selects said one of the plurality of servers representing the virtual server that minimizes or maximizes the chosen function ("Minimizing latency..." Col. 3 Ln. 1 – 17, "...load-balancer module in the client machine...make a server assignment..." Col. 4 Ln. 62 – 67, Col. 5 Ln. 1 – 35).

Zisapel teaches selecting, by the load balancer, one of the plurality of servers that minimizes or maximizes the chosen function, to provide data to the client ("...weighting..." Col. 7 Ln. 17 - 34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Brendel and Skene with the teaching of Zisapel because the teaching of Zisapel would improve the system of Brendel and Skene by providing access to the closest or best suited server to service a client request (Zisapel Col. 6 Ln. 50 - 55).

53. As to claim 48, Zisapel teaches a method according to claim 47, wherein choosing the function comprises choosing responsive to an identity of the client (Request 28 Col. 5 Ln. 32 –38).

54. As to claim 49, Skene teaches method according to claim 47, wherein choosing the function comprises choosing responsive to a time at which the message is received ("...round trip time..." Col. 5 Ln. 18 – 28).

55. As to claim 50, Skene teaches a method according to claim 47, wherein at least two of the predetermined functions depend on different groups of one or more parameters ("...load balancing metrics..." Col. 5 Ln. 18 – 43).

56. As to claim 51, Zisapel teaches a method according to claim 47, wherein at least two of the predetermined functions depend on the same parameters but give different weight to one or more of the parameters on which they depend (Col. 7 Ln. 17 – 34).

57. Claims 11,12,45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 7,047,301 B2 to Skene et al. in view of U.S. Pat. No. 6,182,139 B1 to Brendel as applied to claims 1 or 41 above, and further in view of U.S. Pat. No. 6,389,462 to Cohen et al.

58. As to claim 11, Brendel and Skene are silent with reference to a method according to claim 1, further comprising changing the destination IP address of packets received by the load balancer from the client, to an IP address of the selected server.

Cohen teaches a method according to claim 1, further comprising changing the destination IP address of packets received by the load balancer from the client, to an IP address of the selected server ("...proxy redirector...modified..." Col. 5 Ln. 12 – 36, "...translation..." Col. 8 Ln. 21 – 32).

It would have been obvious to one of ordinary skill in the art the time the invention was made to modify the system of Brendel and Skene with the teaching of Cohen because the teaching of Cohen would improve the system of Brendel and Skene by allowing a client to transparently establish a TCP connection with proxy cache (Cohen Col. 7 Ln. 12 – 17).

59. As to claim 12, Cohen teaches a method according to claim 1, further comprising changing the source IP address of packets received by the load balancer from the selected server ("...translates..." Col. 8 Ln. 35 – 52).

60. As to claim 45, Cohen teaches a load balancer according to claim 41, further comprising a packet changing unit adapted to change the contents of at least one field of packets belonging to connections for which load balancing was performed ("...proxy redirector...modified..." Col. 5 Ln. 12 – 36, "...translation..." Col. 8 Ln. 21 – 32).

61. As to claim 46, Cohen teaches a load balancer according to claim 45, wherein the packet changing unit is adapted to change packets in accordance with half NAT or full NAT procedures (Col. 8 Ln. 53 – 58, Col. 14 Ln. 21 – 45, Col. 15 Ln. 9 – 37).

Response to Arguments

Applicant's arguments filed 11/29/07 have been fully considered but they are not persuasive.

Applicant argues in substance that (1) it is not clear how the client dispatcher (Client Dispatcher 20) of the Brendel prior art would operate in conjunction with the server (EDNS Server 160) of the Skene prior art, (2) the Skene and Brendel prior arts do not teach that the client-controlled load balancer resides between the client and the virtual server, (3) the Skene and Brendel prior arts do not teach selecting a server based on one or more parameters or at least one attribute, (4) the Skene and Brendel prior arts do not teach a client controlled load balancer that selects one of the plurality of servers that minimizes or maximizes the chosen function and (5) the Skene and Brendel prior arts do not teach selecting a server from a server cluster based on the cost of communications between a client and one of the server in the server cluster because the cost as used in the claim includes fees, prices or monetary costs.

The Examiner respectfully traverses Applicants arguments:

As to point (1), the Skene prior art discloses a system and method for allowing extended servers to dynamically load balancing requests from a local server. The

Examiner acknowledges that the Skene prior art does not teach a load balancer executing or controlled by a client, hence the introduction of the Brendel prior art.

The Brendel prior art discloses a client-side load balancer (Client Dispatcher 20) that resides in a client machine's network stack and invisible to a client application. It appears to the client application that a connection is made with a remote server. Once the URL is sent from the client application, the client-side load-balancer assigns a remote server and migrate the connection over the Internet to the remote server. The client application or browser is not aware that the connection was migrated from the local machine to a remote node.

The client (Client 40) including the client-side load balancer (Client Dispatcher 20) used in conjunction with the system of the Skene prior art allows for selection of one of the virtual servers (Virtual Servers 110/111/112). In essence the client (Client 40) is one of the client in the system of Skene prior art and selects a virtual server using the client-side load balancer.

As to point (2), this argument is moot in view of the current rejection.

As to point (3), the Skene prior art discloses a virtual server (EDNS server 160) configured to load balance client requests across the SACs according to a variety of load balancing metrics, including packet rate of each SAC, CPU utilization of the SAC, and number of connections serviced by the SAC. In addition, information about packets between servers in a server array managed by the SAC and clients may be used for load balancing. Such information includes round trip time, packet loss, and hops. This information is parameter or attribute for selecting or assigning a server. Also, the

Brendel prior art discloses client side load balancer that intercepts a requests/packets and selects or assigns an appropriate server. One of the criteria for selecting or assigning server is the Universal/Uniform Resource Locator (URL) attribute (Col. 5 Ln. 4 – 9).

As to point (4), as indicated earlier virtual server (EDNS server 160) load balance client requests across the SACs according to a variety of load balancing metrics, including packet rate of each SAC, CPU utilization of the SAC, and number of connections serviced by the SAC. Information about packets between servers in a server array managed by the SAC and clients may be used for load balancing. Such information includes round trip time, packet loss, and hops. The use of any one of the metrics in selecting a virtual server optimizes the routing of client requests to a virtual server and as such minimizes or maximizes the chosen function/metrics.

As to claim (5), Applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., fees) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The Skene prior art discloses the process of selecting a server from a plurality of virtual servers based on a load balancing metrics. The load balancing metrics include packet rate...number of connections...round trip time, packet loss, and hops. At least "round trip time" or "packet loss" is communication cost for sending a request to one of the

plurality of servers. In selecting a server from the plurality of virtual servers the "round trip time" or "packet loss" is a cost taken into consideration.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Anya whose telephone number is 571-272-3757. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on 571-272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

cea.

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SUPERVISORY PATENT EXAMINER